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IS 15469 (2012): Aerospace - Bolts, Normal Bihexagonal Head, Normal Shank, Short or Medium length MJ threads, Metallic Materials, Coated or Uncoated, Strength Classes less than or equal to 1 100 Mpa - Dimensions [TED 14: Aircraft and Space Vehicles]

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(पहला पुनरीक्षण)

Indian Standard

AEROSPACE — BOLTS, NORMAL BIHEXAGONAL HEAD, NORMAL SHANK, SHORT OR MEDIUM LENGTH MJ THREADS, METALLIC MATERIAL, COATED OR UNCOATED, STRENGTH CLASSES LESS THAN OR EQUAL TO 1 100 MPa — DIMENSIONS

(First Revision)

ICS 49.030.20

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

August 2012 **Price Group 3**

Aircraft, Space Vehicles, Air Cargo Handling and Aircraft Electrical Equipment Sectional Committee, TED 14

NATIONAL FOREWORD

This Indian Standard (First Revision) which is identical with ISO 3185 : 2008 'Aerospace — Bolts, normal bihexagonal head, normal shank, short or medium length MJ threads, metallic material, coated or uncoated, strength classes less than or equal to 1 100 MPa — Dimensions' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Aircraft, Space Vehicles, Air Cargo Handling and Aircraft Electrical Equipment Sectional Committee and approval of the Transport Engineering Division Council.

This standard was first published in 2004 based on ISO 3185 : 1993. The first revision of this standard has been undertaken with a view to bring it in line with the latest version of ISO 3185 : 2008.

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places, are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 286-2 : 1988 ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts	IS 919-2 : 1993 ISO system of limits and fits: Part 2 Tables of standard tolerance grades and limit deviations for holes and shafts (*first revision*)	Identical
ISO 3353-1 : 2002 Aerospace — Lead and runout threads — Part 1: Rolled external threads	IS 11715 (Part 1) : 2011 Aerospace — Lead and run-out threads: Part 1 Rolled external threads (*first revision*)	do

The technical committee has reviewed the provisions of the following International Standards refereed in this adopted standard and has decided that they are acceptable for use in conjunction with this standard:

International Standard	*Title*
ISO 4095	Aerospace — Bihexagonal drives — Wrenching configuration — Metric series
ISO 5855-2	Aerospace — MJ threads — Part 2: Limit dimensions for bolts and nuts
ISO 7913	Aerospace — Bolts and screws, metric — Tolerance of form and position

The standard also makes a reference to the BIS Certification Marking of the product. Details of which is given in National Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

AEROSPACE — BOLTS, NORMAL BIHEXAGONAL HEAD, NORMAL SHANK, SHORT OR MEDIUM LENGTH MJ THREADS, METALLIC MATERIAL, COATED OR UNCOATED, STRENGTH CLASSES LESS THAN OR EQUAL TO 1 100 MPa — DIMENSIONS

(First Revision)

1 Scope

This International Standard specifies the dimensions of normal bihexagonal head bolts, with close or large tolerance normal shank and short or medium length MJ threads, in metallic material, coated or uncoated, with strength classes less than or equal to 1 100 MPa.

This International Standard is applicable to the compilation of aerospace product standards.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 286-2, *ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts*

ISO 3353-1, *Aerospace — Lead and runout threads — Part 1: Rolled external threads*

ISO 4095, *Aerospace — Bihexagonal drives — Wrenching configuration — Metric series*

ISO 5855-2, *Aerospace — MJ threads — Part 2: Limit dimensions for bolts and nuts*

ISO 7913, *Aerospace — Bolts and screws, metric — Tolerances of form and position*

3 Configuration and dimensions

See Figure 1 and Table 1.

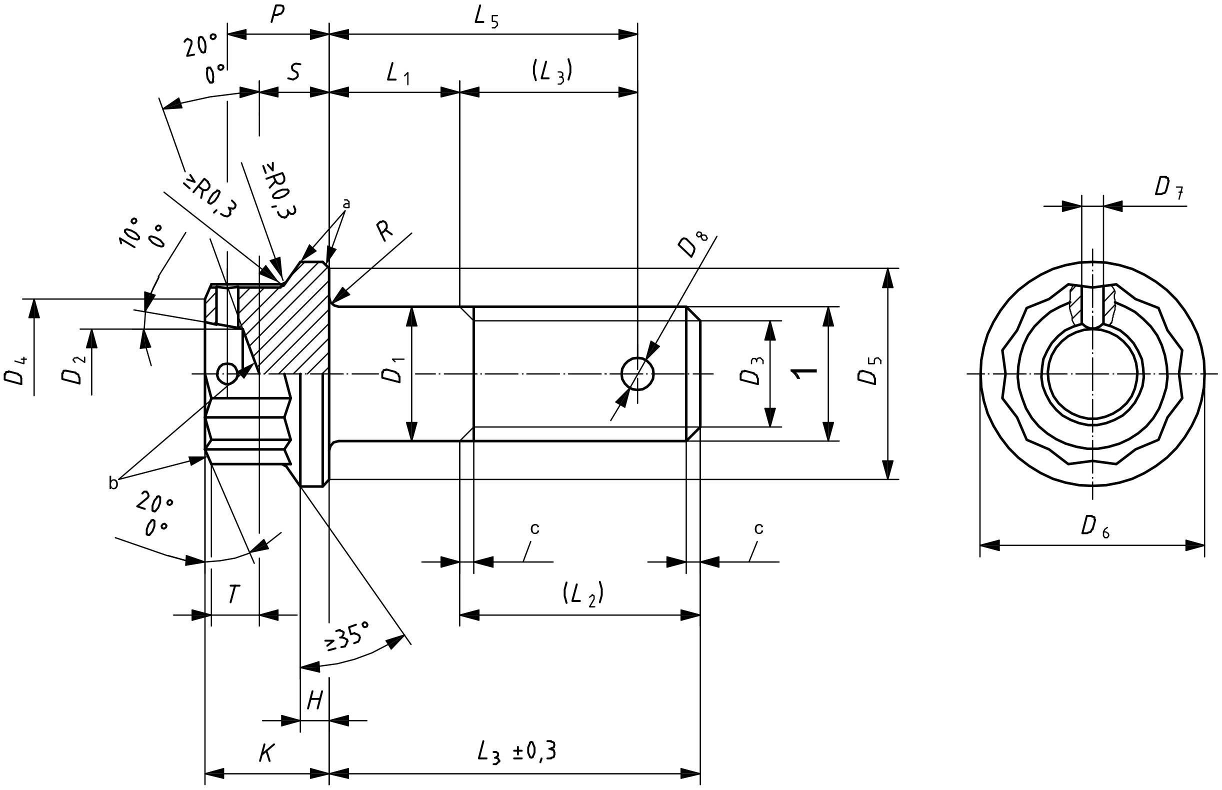
Dimensions and tolerances are expressed in millimetres. They are applicable after any coating (tolerance on shank diameter before coating is also specified for heat cured matrix coatings), but before the application of any lubricant.

Details of form not stated are left to the manufacturer's discretion.

Tolerances of form and position shall be as specified in ISO 7913 if not otherwise stated on product standard.

Dimensions in millimetres

Break sharp edges 0,1 to 0,4



Key

1 thread

[a] Rounded or chamfered in this area.

[b] Shape optional.

[c] In accordance with ISO 3353-1.

Figure 1

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Table 1

Diameter code	**Thread** [a]	D_1						D_2	D_3		D_4	D_5	D_6	D_7 Four holes, equi-distant, optional	D_8 One hole, optional
		nom.	**Coated bolts**			**Uncoated bolts**									
			Tol.			Tol.									
			before coating[b]	close	large	close	large	$^{+0,5}_{0}$	nom.	Tol.	min.	min.	max.	H13[c]	H13[c]
040	MJ4 × 0,7-4h6h	4	–0,030 –0,045	–0,010 –0,035	h12[c]	f7[c]	h12[c]	—	3	$^{0}_{-0,5}$	5,8	7,5	8,3	1	1,1
050	MJ5 × 0,8-4h6h	5						3,2	3,4	± 0,5	6,8	8,3	9,1		1,5
060	MJ6 × 1-4h6h	6						4,1	4,2		7,8	9,8	10,6	1,4	
070	MJ7 × 1-4h6h	7	–0,033 –0,048	–0,013 –0,038				4,9	5,2		8,8	11,3	12,1		1,9
080	MJ8 × 1-4h6h	8						5,2	6,2		9,8	12,8	13,6		
100	MJ10 × 1,25-4h6h	10						6,7	7,9		11,8	15,7	16,7	1,6	2,4
120	MJ12 × 1,25-4h6h	12	–0,036 –0,051	–0,016 –0,041				8	9,8		13,7	18,8	19,9		

Table 1 (*continued*)

H	K	$L_1 \pm 0{,}2$ [d]	L_2		L_3		P	R		S	T	**Wrenching dash number** [e]
			Thread		**Thread**							
min.	h15 [c]		short	medium	short	medium		nom.	Tol.	$^{+0,4}_{0}$	min.	
0,8	5,5	2 to 40	7,5	10	5	6	3,5	0,4	$^{0}_{-0,2}$	–	2,5	06
1	6,5	3 to 50	9	12	6	7,5	4,5	0,5		2,5	2,8	07
1,2	7,5	3 to 60	10	14	7	8,5	5,2	0,7		2,8	3,5	08
1,4	8,2	4 to 70	11	15		9,5	5,9			3,3	3,8	09
1,6	8,6	4 to 80	11,5	16,5	7,5	10,5	6,3			3,7	3,9	10
2	10,1	5 to 100	14,5	20,5	9	13	7,7	0,8		4,7	4,2	12
2,4	11,4	6 to 120	16	22,5	10	14,5	8,8	0,9	$^{0}_{-0,3}$	5,6	4,5	14

[a] In conformity with ISO 5855-2, except for the maximum thread major diameter, $d_{\max}$, of bolts with a close tolerance on D_1, which shall be equal to ($D_{1,\min}$ – 0,025).

[b] Heat cured organic matrix coatings for close tolerance normal shanks.

[c] See ISO 286-2.

[d] Increments:
1 for $L_1 \leqslant 30$;
2 for $30 < L_1 \leqslant 100$;
4 for $L_1 > 100$.
If greater lengths are required, they shall be chosen using these increments.

[e] In conformity with ISO 4095 over T min.

NATIONAL ANNEX A

(*National Foreword*)

A-1 BIS CERTIFICATION MARKING

Bolts may also be marked with the Standard Mark.

A-1.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence of the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc No.: TED 14 (771).

Amendments Issued Since Publication

Amendment No.	Date of Issue	Text Affected

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